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1614

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/785,905
Filing Date: February 16, 2001
Appellant(s): SCHLESIGER ET AL.

James R. Franks
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed February 25, 2005.

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(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments*

The appellants' statement of the status of amendments after final rejection contained in the brief is correct.

(5) *Summary of Claimed Subject Matter*

The summary of the claimed subject matter contained in the brief is correct.

(6) *Grounds of Rejection to be Reviewed on Appeal*

The following ground(s) of rejection are applicable to the appealed claims:

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 98/31710 in view of Bujara et al. is maintained and repeated for both the above-stated and reasons of record. WO 98/31710 teaches of a process of forming a finely divided polysaccharide derivative of cellulose by gelling a cellulose ether between 35 to 99 wt. % of water. WO 98/31710 also teaches that the dissolved cellulose derivative is then converted into the solid state in various state of the art ways, such as with a dryer-

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pulveriser or steam mill drying, (see page 8, lines 11-22 of the translation). WO 98/31710 also disclose of suitable solvents, namely water and hydrocarbons and halogenated hydrocarbons, (see page 7, line s1-6 and page 9, lines 1-8 of the translation). WO 98/31710 also teaches of ranges of the superheated solvent, (see page 7, lines 28-32). WO 98/31710 next teaches that of further separation steps to obtain a polysaccharide derivative that have a high bulk density accompanied by good flow properties, (see page 4, lines 22-31). WO 98/31710 do not specifically recite using an impact mill, although WO 98/31710 do define suitable mills illustratively, (see page 9, lines 3 and 4 of the translation). However, Bujara et al. do in fact teach of employing the use of an impact mill.

Bujara et al. also disclose of a process of generating water-soluble cellulose derivatives of particulate size, (see Example 1). Bujara et al. teach of the gellation of a cellulose derivative, wherein the water content is between 30 to 80 wt. %, (see page 5, lines 31-39). Bujara et al. also teach of utilizing an impact mill on the cellulose feed, (see page 10, lines 23-35). One having ordinary skill in the art would have been motivated to utilize a variety of mill processes as generically taught by WO 98/31710 and further explicitly taught by Bujara et al. Accordingly, it would have been obvious to the skilled artisan to substitute the impact mill of Bujara et al. for the process of WO 98/31710, especially when WO 98/31710 teaches the utilization of a variety of mill processes that can be employed for the production of finely particulate cellulose derivatives when preparing dissolved cellulose derivatives into particulate water-soluble cellulose derivatives.

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(7) Argument

As a matter of formality, applicants have decided to refer to the prior art reference of WO 98/31710 as now to Weber et al. of U.S. Patent No. 6,320,043 B1. However, there is a translation of record for the prior art reference of WO 98/31710 and for this reason as well as the purpose of consistency, all references to the prior art reference of WO 98/31710 in this Examiner's Answer will be referred to as WO 98/31710 rather than the newly suggested Weber et al. by applicants in their Appeal Brief of February 25, 2005.

Applicant argues that instant claims 1-8 are not rendered obvious under 35 U.S.C. 103(a) as being unpatentable over WO 98/31710 in view of Bujara et al. Applicant presents the following arguments. First, applicant alleges that WO 98/31710 does not disclose, teach, or suggest performing their solid, state conversion step using a superheated gas mixture of steam-inert gas or steam-air having a steam content of 40 to 90 wt. %. Second, applicants purport that WO 98/31710 disclose using a superheated vapor of a solvent/mixed solvent as the heat transfer and transport gas in the mill. Third, applicants more particularly submit that the Examiner's contention that heating water to 100°C or above results in the formation of steam or water vapor comprising gaseous water molecules that are mixed with air molecules is inaccurate. Fourth, applicants suggest that neither WO 98/31710 nor Bujara et al. provide a teaching or suggestion to reheating the co-product gasses and/or re-introducing co-product gasses back into the mill. Fifth, applicants further allege that the Examiner has

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mischaracterized WO 98/3170 because the superheated steam of WO 98/31710 would no longer be superheated after contact with the soaked/dissolved polysaccharide derivative.

First, applicant alleges that WO 98/31710 does not disclose, teach, or suggest performing their solid, state conversion step using a superheated gas mixture of steam-inert gas or steam-air having a steam content of 40 to 90 wt. %. WO 98/31710 specifically teach that, "[t]he soaked or dissolved polysaccharide derivative is *then* converted into the solid state . . . in such a way, that . . . the solvent or mixed solvent contained in the soaked or dissolved polysaccharide derivative is converted into the vapor phase *by* means of the superheated vapor of the corresponding, or of a different, solvent or mixed solvent," [Note that the italic emphasis was added] (see translation of WO 98/31710, page 8, lines 11-15). Moreover, these teachings of WO 98/31710 clearly and specifically disclose and teach of using a "superheated vapor" that converts the solvent or mixed solvent contained in the soaked or dissolved polysaccharide derivative "into the vapour phase by means of the superheated vapour", (see translation of WO 98/31710, page 8, lines 11-15).

Second, applicants purport that WO 98/31710 disclose using a superheated vapor of a solvent/mixed solvent as the heat transfer and transport gas in the mill. The solvent or mixed solvent of WO 98/31710 is converted into the vapor phase by means of the superheated vapor during the drying phase in a mill, (see page 8, lines 11-22 of the translation of WO 98/31710). One having ordinary skill in the art would clearly

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recognize that in order for the dissolved cellulose derivative to be converted into the solid state it is obviously dried in the mill.

Third, applicants submit that the Examiner's contention that heating water to 100°C or above results in the formation of steam or water vapor comprising gaseous water molecules that are mixed with air molecules is inaccurate of the Office Action dated June 3, 2004. In fact, applicants' statement that gaseous H₂O is composed of 100% water molecules, (as evidenced by Kirk-Othmer, Encyclopedia of Chemical Technology, Vol. 22, pages 719-720). The examiner agrees with this statement and facts. Regarding applicants' submission of the alleged mischaracterization of steam and its content by the Examiner, the actual statement was directed to the fact that when the gelled cellulose derivative, which contains solvent (such as water), is heated in temperatures at and above 100°C, the water content of the gelled cellulose derivative begins to undergo a change from one physical state of matter (liquid) to another physical state of matter (gas). Since the prior art reference of Bujara et al. teach of employing a gas stream having a temperature up to 250°C, the water content of the gelled cellulose derivative is evaporated in order to dry the cellulose derivative. In addition, during this evaporation step the water molecules of steam are obviously mixed with air during the drying step, thus rendering the instantly claimed subject matter obvious. Additionally, the instant claims are not directed to being in a vacuum, so heated air is present along with the superheated steam. Moreover, when the water in the cellulose is removed by drying at temperatures including and above 100°C, such as 200°C as demonstrated by Example 1 of Bujara et al., the water vapor is superheated

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and at the same time mixed with heated air in the drying step in the mill. In fact, the instant specification even states that in the mill "at least a portion of the water that is present in the feed composition is converted into steam by means of a superheated gas stream mixture", (see page 11, lines 6-8 of the instantly filed specification). Bujara et al. also teach to the skilled artisan that impact mills are used in generating water-soluble cellulose derivatives of particulate size, (see Example 1 of Bujara et al.) Bujara et al. also disclose on page 4, lines 5-8 that it is known in the art that high speed air (which is a gas) impact mills are used to grind cellulose. It is also noteworthy to mention that WO 98/31710 specifically discloses that the solvent or mixed solvent of WO 98/31710 is converted into the vapor phase by means of the superheated vapor during the drying phase in a mill, (see page 8, lines 11-22 of the translation of WO 98/31710).

Furthermore, it is noted that the instant specification describes the inert gas and air illustratively and equates their equivalence, (as cited from page 12, lines 18-22). For these reasons and those of record, one having ordinary skill in the art is clearly and specifically provided with teachings to convert the cellulose derivative of the feed composition into a solid state form with a superheated gas mixture, as do the instant claims, which obviously makes the claimed subject matter obvious to the skilled artisan.

Fourth, applicants suggest that neither WO 98/31710 nor Bujara et al. provide a teaching or suggestion to reheating the co-product gasses and/or re-introducing co-product gasses back into the mill. However, these steps are not present in the claims that are now under appeal and so these arguments are not germane. In addition, the prior art reference of WO 98/31710 discloses that the solvent contained in the soaked or

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dissolved polysaccharide derivative is converted into the vapor phase by means of the superheated vapor. Accordingly, one skilled in the art is clearly and specifically provided with teachings to convert the cellulose derivative of the feed composition into a solid state form with a superheated gaseous mixture, as do the instant claims, which obviously makes the claimed subject matter obvious to one having ordinary skill in the art.

Fifth, applicants further allege that the Examiner has mischaracterized WO 98/3170 because the superheated steam of WO 98/31710 would no longer be superheated after contact with the soaked/dissolved polysaccharide derivative. Foremost, this statement acknowledges that the prior art reference of WO 98/31710 uses a "superheated gas mixture" to dry the soaked/dissolved polysaccharide. Second, contrary to applicants allegation these prior art references are not required to reheat the "superheated gas mixture" because this step is missing from the instant claims. Moreover, applicant recites the word "comprising", which is open-claim language. It is held that "the word 'comprising' incorporates additional steps of procedures and does not exclude materials or processes not recited in the claim", see *Gould v. Mossinghoff, Comr. Pats.*, (DCCD 1982) 215 USPQ 310. In addition, the fact remains that WO 98/31710 discloses and teaches of contacting a "superheated gas mixture" with the soaked/dissolved polysaccharide in order to remove solvent (like water) that is contained in the dissolved polysaccharide derivative, thus forming a dried, finely divided polysaccharide derivative of cellulose, as does the instantly claimed subject matter.

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In conclusion, one skilled in the art is clearly and specifically provided with teachings from WO 98/31710 in view of Bujara et al. to convert the cellulose derivative of the feed composition into a solid state form with a superheated gaseous mixture, as do the instant claims, which obviously makes the claimed subject matter obvious to one having ordinary skill in the art.

(8) *Claims Appendix*

The copy of the appealed claims contained in the Claims Appendix to the brief is correct.

(9) *Evidence Appendix*

Appellants' statement that no evidence has been entered during the prosecution of the instantly claimed subject matter that is contained in the brief is correct.

(10) *Related Proceedings Appendix*

Appellants' statement that there are no related proceedings, which will directly affect or be directly affected by or have a bearing on the Board's decision in this pending appeal that is contained in the brief is correct.

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For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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Primary Examiner
Art Unit 1614



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March 18, 2005

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